

Wiskundige vaardigheden

1	a 1	e 4	i 0
	b -13	f -22	j 2
	c 13	g 4	k -2
	d -1	h 4	l 0
2	a 3	e 0	i -28
	b -14	f 0	j -6
	c -2	g 30	k 6
	d 18	h 6	l 12
3	a -23	e 17	i 20
	b 5	f 6	j -3
	c 2	g -19	k -9
	d 8	h 0	l 4
4	a -1	e 10	i -82
	b 15	f -12	j -4
	c -76	g $8\frac{1}{3}$	k -1
	d 12	h -2	l $3\frac{1}{2}$

5	a $\frac{1}{7}$	e $-1\frac{7}{9}$	i $2\frac{1}{2}$
	b $-\frac{3}{8}$	f $\frac{14}{27}$	j $\frac{1}{3}$
	c $5\frac{1}{7}$	g $-2\frac{1}{2}$	k $-6\frac{1}{7}$
	d $-\frac{1}{2}$	h 1	l $-1\frac{3}{4}$
6	a $-\frac{1}{2}$	d $-\frac{13}{24}$	g $-\frac{8}{77}$
	b $-\frac{1}{4}$	e $-\frac{31}{90}$	h $\frac{1}{4}$
	c $\frac{1}{5}$	f $1\frac{11}{20}$	i $1\frac{67}{70}$
7	a $-\frac{2}{15}$	e $-\frac{18}{35}$	i $\frac{1}{8}$
	b $\frac{1}{16}$	f $1\frac{1}{24}$	j $\frac{9}{10}$
	c $\frac{1}{6}$	g $\frac{26}{27}$	k $\frac{39}{40}$
	d $-\frac{1}{15}$	h $-\frac{5}{16}$	l $-\frac{53}{280}$

- 1** a $18pq$ d $-15abc$ g $36a^2$
b $-16ab$ e $3ac^2$ h $-40ab^2$
c $21b^2$ f $-30pqr$ i $-pqr$
- 2** a $9a$ d ab g $2ab - ac$
b $6a$ e k.n. h $5pq - 8p$
c $6a$ f $-19c$ i $9q - 2pq$
- 3** a $10ab$ d $25pq$
b $-8ab$ e $-27pq$
c $10a^2$ f $-15ac + 10ab$
- 4** a $5p$ d $9a - 3b$ g $4ab - 2ac$
b $-24pq$ e $-24a^2b$ h $4x$
c $-24p^2$ f $37a$ i $-4x$
- 5** a $3x + 3y$ d $a - 11b$
b 0 e $9a - 7b - 7$
c $-6x$ f $-58ab$

- 6** a $-14xy$ d $-6a^2 + 6a$
b $-2x - y$ e 0
c $2xy$ f $-8ab$
- 7** a $16ab$ d -9
b $-2b$ e $-36a$
c $19ab$ f $38ab$
- 8** a $19a^2$ d $8ab$
b $-4a$ e $10b$
c $40a$ f $-3a^2$
- 9** a $-25a^2b$ d $-4a + c$
b $10a^2bc$ e $-8a^2 + 8b$
c $-38a^2b$ f $10ab - 5ac$

1 a 6 e 31
b 99 f -398
c 43 g 53
d 73 h -99

2 a -19 e -58
b -13 f 0
c 21 g -78
d -1 h -1

3 a 7 e 25
b -32 f 33
c 25 g 14
d 0 h -7

4 a 6 e 2
b 77 f 105
c 11 g -15
d 26 h -15

5 a $\frac{14}{15}$ d $1\frac{5}{18}$ g $1\frac{23}{30}$
b $2\frac{9}{10}$ e $\frac{11}{12}$ h $-3\frac{3}{10}$
c $6\frac{3}{5}$ f $2\frac{1}{5}$ i $-3\frac{1}{9}$

6 a $-\frac{11}{15}$ d $-\frac{1}{8}$ g $-\frac{17}{40}$
b $1\frac{39}{56}$ e -20 h $-26\frac{1}{24}$
c $\frac{2}{15}$ f $6\frac{13}{15}$ i $5\frac{3}{7}$

7 a $1\frac{11}{24}$ f $-1\frac{17}{28}$
b $\frac{7}{12}$ g $3\frac{1}{14}$
c $2\frac{5}{12}$ h $17\frac{4}{5}$
d $24\frac{3}{7}$ i -28
e $-2\frac{47}{56}$ j $10\frac{1}{2}$

8 a $6\frac{2}{3}$ c $2\frac{9}{26}$
b $\frac{5}{24}$ d $8\frac{5}{8}$

1	a $\frac{17}{20}$	d $4\frac{7}{12}$	g 9
	b $2\frac{3}{22}$	e $1\frac{7}{8}$	h $12\frac{1}{4}$
	c $3\frac{17}{24}$	f $5\frac{1}{2}$	i $11\frac{1}{5}$
2	a $-\frac{5}{21}$	d $-2\frac{5}{22}$	g $-4\frac{1}{4}$
	b $-1\frac{2}{33}$	e $9\frac{1}{12}$	h $\frac{23}{60}$
	c $-3\frac{1}{4}$	f $5\frac{1}{35}$	i -3
3	a $\frac{14}{55}$	d $2\frac{14}{15}$	g $2\frac{1}{7}$
	b $12\frac{5}{6}$	e $6\frac{10}{21}$	h -16
	c $2\frac{4}{7}$	f $-\frac{4}{21}$	i $7\frac{7}{8}$
4	a $5\frac{7}{12}$	d $8\frac{5}{7}$	g $\frac{5}{6}$
	b $7\frac{1}{2}$	e $1\frac{2}{7}$	h $1\frac{44}{45}$
	c $1\frac{1}{12}$	f $18\frac{4}{7}$	i $-\frac{2}{3}$

5	a $\frac{4}{5}$	d a	g 3p
	b $\frac{5a}{6b}$	e 5	h z
	c $\frac{b}{2}$	f $\frac{1}{5}$	
6	a $\frac{7}{x}$	d $\frac{x-y}{6}$	g 2
	b $\frac{3-x}{y}$	e 5b	h 2
	c $\frac{9}{a}$	f 8x	
7	a $\frac{5b+3a}{ab}$	d $\frac{9b+10a}{6ab}$	g $\frac{x}{2y}$
	b $\frac{x-12}{4x}$	e $\frac{5y-2x}{2xy}$	h $\frac{3b-4a}{4b}$
	c $\frac{6a+2}{a}$	f $\frac{7-2x}{x}$	
8	a $\frac{2x}{ay}$	d $\frac{30y}{x}$	g $\frac{2}{ab}$
	b $\frac{15}{xy}$	e $\frac{9}{2z}$	h $\frac{1}{5}$
	c $\frac{10y}{3xz}$	f $\frac{2}{5}$	

1	a $\frac{5}{6}$	d $\frac{3}{8}$	g $1\frac{3}{10}$
	b $\frac{22}{35}$	e $\frac{1}{12}$	h $\frac{1}{24}$
	c $1\frac{1}{28}$	f $-\frac{4}{15}$	i $\frac{10}{33}$
2	a $1\frac{1}{4}$	d $3\frac{1}{6}$	g $1\frac{13}{20}$
	b $2\frac{1}{3}$	e $2\frac{2}{5}$	h $\frac{11}{12}$
	c $6\frac{3}{20}$	f $1\frac{5}{8}$	i 3
3	a $\frac{1}{6}$	d $-\frac{15}{16}$	g $1\frac{5}{7}$
	b $\frac{3}{35}$	e $\frac{1}{2}$	h $4\frac{1}{4}$
	c $\frac{3}{10}$	f 1	i 15
4	a $\frac{5}{6}$	d $10\frac{2}{3}$	g $-1\frac{19}{20}$
	b $1\frac{1}{2}$	e $-3\frac{1}{3}$	h $-2\frac{18}{49}$
	c $\frac{3}{4}$	f $1\frac{23}{32}$	i 3

5	a 8	d $-\frac{1}{14}$	g 0
	b $18\frac{2}{3}$	e $11\frac{23}{27}$	h 125
	c $11\frac{1}{4}$	f $2\frac{13}{18}$	i $-1\frac{51}{77}$
6	a $\frac{3b+5a}{ab}$	f $\frac{-12p+2}{3p}$	
	b $\frac{-14+a^2}{7a}$	g $\frac{3pr+8q}{10qr}$	
	c $\frac{2a-12}{3b}$	h $\frac{17b+3a}{3b}$	
	d $\frac{32b-a}{4b}$	i $\frac{2bc-12ac+9ab}{6abc}$	
	e $\frac{4+p^2}{2pq}$		

- 1** a $-12x^2$ d $-13x$ g $11xy$
b x e $-xy$ h $-2 + 3x$
c $7 - 2x$ f xy i $3x + 10y$
- 2** a $12a$ e k.n. i $-16a$
b $35a^2$ f $15ab$ j $-23a$
c $2a$ g $8 + a - b$ k $13ab$
d $-35a^2$ h $22a$ l $a + 3b$
- 3** a 81 d -75 g -48
b 9 e 8 h 0
c 40 f 23 i -44
- 4** a $12a^{10}$ c $10a^9$ e $28x^6$
b $-15a^8$ d $16a^{12}$ f $11x^6$
- 5** a $3a^3$ c 3 e $-2a$
b $-32a^{15}$ d a^6 f $-75a^8$
- 6** a $x^2 + 6x + 5$ g $a^2 + 8a - 48$
b $x^2 - 7x - 18$ h $a^2 - 3a - 54$
c $5x^3 - 20x$ i $p^2 + 10p + 25$
d $x^2 - 5x - 6$ j $5p^2 - 15p$
e $a^2 - 13a + 30$ k $12p^2 - 6p$
f $a^2 - 14a + 49$ l $13p - 6p^2 - 6$

- 7** a $2x^2 + 5x - 3$ g $5a^3 - 5a^2$
b $3x^2 - 10x$ h $-30 - 9a$
c $25x^2 + 10x + 1$ i $14p^2 - 62p + 24$
d $-7x - 32$ j $10p^2 - 8p$
e $a + 3$ k $49p^2 - 28p + 4$
f $8 - 6a$ l $-10a - 5a^2$
- 8** a $(x + 2)(x + 3)$ i $(x + 1)(x - 2)$
b $(x + 1)(x - 6)$ j $(x + 1)(x + 1)$
c $x(x + 5)$ k $x(x + 2)$
d $(x + 1)(x - 7)$ l $(x - 2)(x + 9)$
e $(x - 9)(x + 10)$ m $2x(1 - 4x)$
f $(x - 3)(x - 3)$ n $5x(2 - x)$
g $(x + 7)(x - 8)$ o $x^2(1 + 5x)$
h $(x + 6)(x - 8)$

- 1** a $x = 3$ d $x = 108$ g $x = 2$
b $x = \frac{1}{4}$ e $x = -3\frac{4}{5}$ h $x = -1$
c $x = -3\frac{1}{2}$ f $x = 15$ i $x = -5$
- 2** a $-70x^2$ d $70x^8$ g k.n.
b $-17x$ e $-8x^7$ h $-17x^7$
c $-17 - 2x$ f $-20x^{14}$ i $7x - 7$
- 3** a $x^2 + 12x + 27$ f $-a^2 - 10a - 24$
b $9a^2 - 24a + 16$ g $a^2 - 6a + 9$
c $x^2 - 7x - 8$ h $a^2 - 49$
d $x^2 - 11x + 28$ i $2x^2 + 9x - 5$
e $3a^3 + 3a$
- 4** a $(x + 5)(x + 10)$ g $(x + 6)(x - 7)$
b $(x + 2)(x - 17)$ h $4(3x^2 - 4)$
c $x(x + 15)$ i $(x - 8)(x + 9)$
d $(x + 3)(x - 10)$ j $x(72x - 1)$
e $(x + 1)(x - 2)$ k $(x - 3)(x + 11)$
f $(x + 4)(x + 5)$ l $x(x + 8)$
- 5** a $x = 4 \vee x = -4$ g $x = -8 \vee x = 1$
b $x = 3 \vee x = -6$ h $x = -4 \vee x = 5$
c $x = -2 \vee x = 4$ i $x = -3 \vee x = 7$
d $x = 1 \vee x = -2$ j $x = 2 \vee x = -\frac{1}{2}$
e $x = 4 \vee x = -4$ k $x = 0 \vee x = 6$
f $x = 0 \vee x = -8$ l $x = 2 \vee x = -2$